

1 RECORD OF ORAL HEARING  
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3 UNITED STATES PATENT AND TRADEMARK OFFICE  
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6 BEFORE THE BOARD OF PATENT APPEALS  
7 AND INTERFERENCES  
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10 Ex parte TAKAYUKI NORIMATSU  
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13 Appeal 2007-0001  
14 Application 09/944,589  
15 Technology Center 3600  
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18 Oral Hearing Held: May 15, 2007  
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22 Before MURRIEL CRAWFORD, JENNIFER BAHR, and LINDA  
23 HORNER Administrative Patent Judges  
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26 ON BEHALF OF THE APPELLANT:  
27

28 GREGORY W. HARPER, ESQUIRE  
29 Staas & Halsey, LLP  
30 1201 New York Avenue, N.W.  
31 Suite 700  
32 Washington, D.C. 20005  
33  
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35 The above-entitled matter came on to be heard on May 15, 2007,  
36 commencing at approximately 1:22 p.m., at the United States Patent and  
37 Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Victoria  
38 L. Wilson, Notary Public.

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3 USHER: Calendar Number 29. Appeal Number 2007-0001. Mr.  
4 Harper.

5 JUDGE CRAWFORD: Good afternoon, Mr. Harper.

6 MR. HARPER: Hello.

7 JUDGE CRAWFORD: We have had a chance to talk about the case a  
8 little bit.

9 MR. HARPER: Thank you, your Honor.

10 Hello. Good afternoon. I am Greg Harper and I'm the attorney for the  
11 appellant, Takayuki Norimatso, in U.S. Patent Application Number  
12 9/944589.

13 We are appealing the final rejection of claims 1 through 12 under 35  
14 USC 112, first paragraph, as failing to comply with the enablement  
15 requirement, and alternatively, the final rejection of claims 1 through 12  
16 under 35 USC 103(a) as being unpatentable over Alff US 5622437 in view  
17 of the appellant's prior art admission filed March 18, 2004, based on the  
18 handbook entitled, Knack of Selecting Magnetic Material.

19 The present invention, the subject of this appeal, is a wheel-bearing  
20 assembly in which a magnetized encoder can withstand severe temperature  
21 conditions occurring around a vehicle wheel to thereby secure a high  
22 accuracy of detection of rotational speed.

23 The wheel-bearing assembly includes a sealing device interposed  
24 between inner and outer members. A rotary member which is defied by one  
25 of the inner and outer members is provided with a magnetized encoder  
26 having a series of alternating magnetic holes of opposite polarities.

1           The magnetized encoder constitutes the sealing device. The  
2 magnetized encoder can maintain initial magnetic characteristics as regards a  
3 single pitched deviation and the magnetic flux -- flux density under  
4 predetermined thermal endurance test condition.

5           In particular, the magnetized encoder of the present invention can  
6 maintain initial magnetic characteristics as regards the signal pitched  
7 deviation, and the magnetic flux density under predetermined thermal  
8 endurance test condition in a new and novel way over the cited prior art.

9           JUDGE CRAWFORD: What is it about this encoder that maintains  
10 this magnetic characteristics?

11          MR. HARPER: The thermal test condition -- the thermal endurance  
12 test condition and the makeup of the bonded magnet.

13          JUDGE CRAWFORD: What is it about the makeup of the bonded  
14 magnet?

15          MR. HARPER: The bonded magnet is standard and known to those  
16 in the art. It is a 15 percent -- between 10 and 15 percent magnetic material  
17 and 85 percent -- excuse me, the other way around. Between 2 and 15  
18 percent rubber and between 85 percent -- 80 -- 85 and 90 percent --

19          JUDGE CRAWFORD: So you know what I am having confusion is,  
20 in your specification, you talk about these encoders in the past and they can't  
21 withstand the temperature changes, and then you go on and say that Knack is  
22 showing how you would make it out to this particular percentage.

23          But why would a person think being unable to make it in that  
24 percentage from looking at Knack, which doesn't -- not necessarily have the  
25 thermal characteristics that you are talking about?

26          MR. HARPER: Well, a person that -- a person of ordinary skill in the

1 art using the specification, they would have the chance to -- if they read the  
2 specification and they took a bonded magnet that was made in standard  
3 configuration and then subjected it to the thermal test conditions, the thermal  
4 endurance test condition that the applicants have claimed, then they will  
5 produce a bonded magnet having the test characteristics in the specification -  
6 - in the -- recited in the claims.

7 JUDGE CRAWFORD: Well, how would they know how to change it  
8 to make it so that it would have these characteristics? How would they  
9 know how to make it, you know, from your --

10 MR. HARPER: How to make the bonded magnet?

11 JUDGE CRAWFORD: Yes.

12 MR. HARPER: We are contending -- the applicant is contending in  
13 his Rule 132 declaration that it is well-known in the art how to make a  
14 bonded magnet already and that the specification as drafted would be  
15 enabling to a practitioner.

16 JUDGE CRAWFORD: But didn't you say in your spec that you are  
17 making -- you are making your magnet out of some different materials?

18 MR. HARPER: Yes.

19 JUDGE CRAWFORD: Okay. So why would you, when you were  
20 making it out of these different materials, why would you look at Knack,  
21 which is a standard bonded magnet, for the percentages? I mean, then, in  
22 fact, aren't the percentages missing from your specification?

23 MR. HARPER: Yes, the percentages are missing in the specification.

24 JUDGE CRAWFORD: Okay.

25 MR. HARPER: They are not listed in there.

26 JUDGE CRAWFORD: So since you are trying to get this different

1 characteristic, you would be you enabled to make it with these percentages  
2 from Knack when it is not dealing with a -- a bonded magnet that has the  
3 thermal characteristics?

4 MR. HARPER: We are contending that the -- that making the bonded  
5 magnet is already known, as evidenced by the handbook.

6 JUDGE CRAWFORD: So you are contending all bonded magnets  
7 have these percentages.

8 MR. HARPER: I wouldn't go that far, but a practitioner would know  
9 how to make a bonded magnet, having -- using the weight percentages in the  
10 handbook.

11 JUDGE CRAWFORD: Okay.

12 JUDGE HORNER: Was the problem about the cracking due to the  
13 thermal conditions known in the art?

14 MR. HARPER: Yes. Yes.

15 Claim 1 -- claims 1, 11 and 12 are independent claims and stand or  
16 fall together. Claims 2 through 10 are dependent claims.

17 Claim 1 recites a wheel-bearing assembly which comprises an inner  
18 member and outer member, at least one circumferential roll of rolling  
19 elements rolling the interposed between the inner and outer members, a  
20 sealing device sealing an annular end space defined between the inner and  
21 outer members, a magnetized encoder mounted on one of the inner and outer  
22 members which serves as a rotary member and including an elastic member  
23 made of the base material mixed with a powder of magnetic material, said  
24 elastic member being bonded by vulcanization to the magnetized encoder  
25 and having a series of alternating magnetic poles of opposite polarities  
26 formed in a direction circumferentially over the rotating -- rotary member

1 wherein under a thermal endurance test condition in which the magnetized  
2 encoder is subjected to 1,000 thermal cycles, each consisting of heating at  
3 120 degrees Celsius for one hour, followed by cooling at negative 40  
4 degrees Celsius for one hour, the magnetized encoder retains the following  
5 initial magnetic characteristics.

6 When measured at a .2.0 [sic] millimeters distant from the magnetic  
7 sensor, the single pitched deviation would be plus or minus 2 percent or less  
8 and the magnetic flux density would be plus or minus milites or higher.

9 Independent claim 11 recites an elastic member of a magnetized  
10 encoder disposed on a rotary member of a wheel-bearing assembly similar to  
11 claim 1. Claim 12 recites a magnetized encoder disposed on a rotary  
12 member of a wheel-bearing -- wheel-bearing assembly also similar to claim  
13 1.

14 In the final office action mailed March 28th, 2005, the examiner  
15 rejected claims 1 through 12 under 35 USC 112 first paragraph as failing to  
16 comply with the enablement requirement. As we just discussed, the  
17 appellant filed a Rule 132 declaration on March 18th, 2004.

18 In the declaration, the appellant asserted that if provided with the  
19 information in the subject application, particularly the potential materials of  
20 which the encoder is made, for example, in paragraph 45 of the application,  
21 the elastic materials made of a material containing rubber as a base material,  
22 for example, the heat-resistant nytrial rubber, acrylic rubber or fluorine-  
23 containing rubber mixed with a powder of magnetic material.

24 For the powder of magnetic material, ferrite might be employed.

25 And back to the Rule 132 declaration. And the resulting properties of  
26 the encoder under thermal endurance test condition in which the magnetized

1 encoder is subjected to 1,000 thermal cycles each consisting of heating at  
2 120 degrees Celsius for one hour followed by cooling at negative 40 degrees  
3 Celsius for one hour, the magnetized encoder retains the following initial  
4 magnetic characteristics when measured at a point, two points --

5 JUDGE CRAWFORD: Do you have someplace in your spec where  
6 you talk about the bonded magnets or you can connect this Knack reference  
7 with what you are saying?

8 Because this declaration is just saying -- you know, it says they can do  
9 it with -- someone can do it without undue experimentation for the following  
10 reason, and then it just cites the handbook, and I'm just having a problem  
11 making that leap. Is there someplace in the spec where you say this is made  
12 the conventional way of a bonded magnet?

13 MR. HARPER: I don't believe the term "bonded magnet" is in the  
14 specification.

15 JUDGE CRAWFORD: It is not even in the spec.

16 MR. HARPER: A bonded magnet is a synonym for -- I think the  
17 specification uses the term "rubber magnet," but when you use the -- in  
18 claim 1, in paragraph 40, when it talks about a magnetized encoder mounted  
19 on one of the inner and outer members, and paragraph 40 of the  
20 specification, then it says -- let's see -- the first sealing plate has its outer  
21 surface to which an elastic member is mixed with a powder of magnetic  
22 particles as bonded by vulcanization.

23 This elastic member forms a part of the magnetized encoder. And  
24 that's essentially saying the same thing as a bonded magnet to people in skill  
25 -- of skill -- of ordinary skill in the art would recognize that that's a bonded  
26 magnet. A "rubber magnet" is another term that could be employed.

1 JUDGE HORNER: So what the declaration is saying, then, is that  
2 one skilled in the art, if they made a conventional magnet, according to this  
3 article, with the weight percents of the magnetic material and the elastic  
4 material and substituted one of the materials from your specification --

5 MR. HARPER: Yes, Judge.

6 JUDGE HORNER: -- then they would end up with the properties that  
7 you are claiming.

8 MR. HARPER: Yes, Judge.

9 JUDGE HORNER: Okay.

10 MR. HARPER: Can I go on?

11 JUDGE CRAWFORD: You know, what do you say about the  
12 examiner's argument that it might have a mixing ratios but it doesn't teach a  
13 wheel-bearing assembly or an encoder? I'm sort of like having this problem  
14 leaping over here to that.

15 MR. HARPER: A person of ordinary skill in the art would be drawn  
16 to the handbook because it teaches bonded magnets or rubber magnets or  
17 how to make a magnetized encoder. We believe that it would be --

18 JUDGE CRAWFORD: That's really not in your declaration. Your  
19 declaration is very sparse here.

20 MR. HARPER: It says at the bottom of the first page of the  
21 declaration, it says, "A handbook entitled, Knack of Selecting Magnetic  
22 Material."

23 And it describes that a bonded magnet is known to be obtainable by  
24 mixing a magnetic material with a bond such as rubber contained within the  
25 range of 2 to 15 weight percent, and the bonded magnet is similar to the  
26 rubber magnet forming the magnetized encoder of the subject application.



1           The -- we don't -- I don't believe that it was -- if you were -- a book on  
2 wheel-bearing assemblies necessarily wouldn't contain information on  
3 rubber magnets or bonded magnets or encoder wheels that you would have  
4 to look in the -- in a text on magnetic materials, and that it would be a  
5 natural conclusion to go to a book such as the handbook cited by the -- by  
6 the appellant.

7           JUDGE CRAWFORD: And it may be, but it is not in the dec --  
8 declaration, is all I'm saying.

9           MR. HARPER: I'm sorry, ma'am. I don't -- I -- could you repeat your  
10 question?

11          JUDGE CRAWFORD: I'm trying to make a connection with the  
12 bonded magnet in your reference with an encoder for a wheel assembly.

13          MR. HARPER: We think it is -- it is obvious to combine the two and  
14 it is -- no, it is not in the -- it is not in the -- it is not in the declaration.

15          JUDGE CRAWFORD: All right.

16          MR. HARPER: The handbook --

17          JUDGE CRAWFORD: Why don't you go on to your next rejection,  
18 because we are running a little low on time.

19          MR. HARPER: The examiner alternately rejected claims 1 through  
20 12 under 35 USC 103(a) as being unpatentable over Alff in view of the  
21 applicant's admitted prior art submission based on the handbook.

22          The examiner states that the declaration states one of ordinary skill in  
23 the art would be able to achieve an encoder having a mixing ratio of  
24 approximately 85 to 90 percent weight magnetic material and 10 to 15  
25 percent weight elastic material without undue experimentation because of  
26 the teaching found in the handbook.

1 To the contrary, the declaration states that if supplied with the  
2 information disclosed in the subject application, one of ordinary skill in the  
3 art would have been able to achieve an encoder for a rotary member of a  
4 wheel-bearing assembly having a mixing ratio of approximately 85 to 90  
5 percent weight magnetic material and 10 to 15 percent weight elastic  
6 member without undue experimentation.

7 JUDGE CRAWFORD: Why wouldn't it be the same if you had the --  
8 the Knack reference plus, what is it, Alff? Why wouldn't it be the same  
9 analysis that would have been obvious?

10 MR. HARPER: Well, one thing that's not in Alff or the handbook that  
11 is disclosed is the thermal endurance test conditions or the claimed  
12 properties of the encoder in claims 1, 11 and 12, and the examiner conceded  
13 this point in the examiner's answer mailed November 21st, 2005, on the page  
14 9.

15 He -- he said that the thermal endurance test is not -- was not  
16 disclosed in any of the cited references. It is --

17 JUDGE HORNER: When you say the test was not disclosed, are you  
18 saying that if you took Alff and used the teaching of Knack to make an  
19 encoder, that it wouldn't meet the conditions in claim 1, inherently? Is that  
20 the argument you are making?

21 MR. HARPER: If we didn't use -- well, we also have the materials  
22 were also disclosed in the specification.

23 The specific kinds of -- the specific kinds of rubber that we suggest to  
24 be used, or rubber material and the ferrite for the magnetic material, and then  
25 -- yes, and then the thermal endurance test creates a stronger encoder that's --  
26 that's novel and better than what's in the prior art right now or at the time of

1 the subject application.

2 And if I have a little more time, I would also like to -- to point out that  
3 claim 8 recites -- dependent claim 8 recites, Wherein an outer end of the  
4 cylindrical portion of the second sealing plate has a wall thickness smaller  
5 than the remaining part of said cylindrical portion of said second sealing  
6 plate, said outer end being bent radial inward.

7 In claim 5, from which claim 8 depends, the first sealing plate is  
8 defined as being mounted on one of the inner and outer members serving as  
9 the rotary member, and the second sealing plate is defined as being fitted to  
10 the inner or outer member different from the inner or outer member that the  
11 first sealing plate is fitted to.

12 In other words, the second sealing plate is fitted to one of the inner  
13 and outer members serving as the non-rotary member.

14 The appellant respectfully submits that neither Alff nor Hajzler, which  
15 is cited in Alff and relied on by the examiner, disclose or suggest that an  
16 outer end of said cylindrical portion of said second sealing plate has a wall  
17 thickness smaller than the remaining part of the cylindrical portion of the  
18 second sealing plate.

19 And additionally, the appellant respectfully submits that neither Alff  
20 nor Hajzler disclose or suggest that the outer end is bent radially inward.  
21 The handbook also fails to cure these defects.

22 And for at least the foregoing reasons, it is respectfully submitted that  
23 claims 1 through 12 are enabled under 35 USC 112 and further patently  
24 distinguished over Alff in view of the handbook.

25 Thank you for your time.

26 JUDGE CRAWFORD: Any questions?

1           Thank you.

2           MR. HARPER: Thank you very much. This was my first time.

3   Thank you, ladies.

4           Whereupon, the proceedings at 1:41 p.m. were concluded.